Comparisons of Job Characteristics

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 90

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematics	9.2	25.0	23.7	0	Current knowledge level may be sufficient
Computers and Electronics	8.4	17.2	17.1	0	Current knowledge level may be sufficient
Engineering and Technology	5.7	12.6	17.5	>>	Current knowledge level is likely more than sufficient
Physics	4.3	11.6	23.8	>>	Current knowledge level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 90

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematics	6.2	23.2	19.5	<<	Extensive development of skills in this area may be required
Active Learning	8.7	16.4	16.4	0	Current skill level may be sufficient
Reading Comprehension	10.7	16.3	19.0	>	Skill level is likely sufficient
Critical Thinking	10.8	16.0	16.7	0	Current skill level may be sufficient
Complex Problem Solving	9.1	15.1	15.9	0	Current skill level may be sufficient
Science	4.5	13.0	20.4	>>	Skill level is likely more than sufficient
Learning Strategies	7.2	11.5	14.5	>	Skill level is likely sufficient
Programming	2.2	6.2	12.7	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematical Reasoning	6.3	20.6	20.7	0	Current ability level may be sufficient
Written Comprehension	11.0	16.4	19.2	>	Current ability level is likely sufficient
Deductive Reasoning	10.6	15.7	17.8	>	Current ability level is likely sufficient
Number Facility	6.3	15.5	18.6	>	Current ability level is likely sufficient
Originality	7.6	15.0	17.8	>	Current ability level is likely sufficient
Information Ordering	9.9	14.7	16.3	>	Current ability level is likely sufficient
Inductive Reasoning	10.2	14.4	18.3	>>	Current ability level is likely more than sufficient
Fluency of Ideas	7.6	14.3	16.6	>	Current ability level is likely sufficient
Speed of Closure	5.9	9.3	12.4	>>	Current ability level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Work Activities	Exclusivity of Activity
Advise clients or customers	19
Advise governmental or industrial personnel	28
Analyze scientific research data or investigative findings	27
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Develop mathematical ideas or interpretations	85
Develop mathematical simulation models	70
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop scientific or mathematical hypotheses, theories, or laws	62

Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Explain complex mathematical information	30
Make decisions	24
Make presentations	13
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Provide expert testimony on research results	66
Recommend further study or action based on research data	60
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use knowledge of investigation techniques	16
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use oral or written communication techniques	1
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 69

Focus Occupation: Physicists (19-2012)
Associated Occupation: Mathematicians (15-2021)

Tools and Technologies	Exclusivity
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.